Dr Zac Fitz-Walter

An Introduction to Gamification

What it is and how to effectively use it.

Edition 1.03
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Welcome adventurer!

Do you want to know what gamification is and how to start designing it? Well, by downloading this book you're off to a good start.

Here you'll find four "quests" (okay, they're just chapters, but quests does sound more game-like and fun right?) to help you to get started on your journey to becoming a gamification geek. You'll learn all about gamification, where its origins lie, how it can be a useful design strategy and how you can effectively put it to use.

Work your way through the "quests" one by one and get in touch if you have any questions.

Game on!

Dr Zac Fitz-Walter

E: hello@zacfitzwalter.com
W: www.zacfitzwalter.com

Chapter 1

What is gamification?

A brief history of gamification, defining gamification and some examples.

The sweet sound of music

In a world where 1 in 4 adults are not active enough, encouraging physical activity is important. Say we want to encourage people to add a little more activity to their day by taking the stairs instead of the escalator. How could we do this? Maybe we could reverse the escalator? Or put an out of order sign on it for one day a week? Or even remove it completely? Maybe, but if someone actually needs the escalator then this wouldn't work. So what could we do?

Some very clever people came up with an interesting idea that didn't involve changing the escalator at all. Instead they focused on the stairs and tried to make them more fun to use than the escalator. How did they do this?

They turned the stairs into a giant piano.

KJ Vogelius (Flickr)

The piano stairs are a fantastic example of playful design, design which draws upon curiosity and surprise to encourage commuters to try something they might not normally do. And you can see the effect that this solution has on some people who not only just go up the stairs, but they stop and go down again and back up again and down again and up again…

This demonstrates that play can be **a powerful way to motivate people**. And this is exactly the same kind of thinking behind gamification – using play to motivate. Except that gamification draws more specifically upon video games, rather than just play. Because simply put, **games are incredibly engaging**.

A brief history of gamification

Gamification is a special word. There has been a long history of using fun and play to motivate people and make work more enjoyable. Scouts could obtain the Eagle rank back in 1912, and even Mary Poppins had cottoned on to this, as evident from the lyrics in the famous song "A Spoonful of Sugar".

> "In ev'ry job that must be done there is an element of fun. You find the fun and snap! The job's a game."
>
> — Mary Poppins, 1964

However the term *gamification* has only been a recent addition to our vocabulary. Before the term existed many designers and researchers were already exploring the role of play and fun in computer applications. Malone in the early 80s created heuristics for designing enjoyable user interfaces and Draper in the late 90s looked at analysing fun as a candidate software requirement.

In the early 2000s we saw more people considering the role of fun and play in user experiences (e.g., Funology: From Usability to Enjoyment). Rather than just make usable interfaces, designers were considering how positive emotions and feelings could be elicited through sound, graphics, etc., thus enhancing the experience the user had with the software.

More recently, a number of applications have appeared which have **directly used elements from games**.

Chore Wars is one of these, released in 2007, it is a task management application with a role-playing game inspired interface, complete with experience points, monster battles and loot.

Another example was Foursquare, released in 2009, it used to be a location sharing application that rewarded points and badges to users for using the service to "check-in" to locations. Foursquare used to allow users to compete with each other via leaderboards that compared their engagement with the service.

This particular example became somewhat of a blueprint for many future gamification designs.

From 2010 onwards the term gamification became more and more popular, being adopted by companies such as Bunchball and Badgeville to describe the platforms they had created for integrating game elements into websites. More services and applications were released that integrated game elements such as the Epic Win app. Gabe Zichermann published a book on Games-Based Marketing and became an early evangelist for the word, using it primarily in the marketing world. In the academic world Sebastian Deterding was one of the first academics to talk about it, and also warning of it's potential pitfalls. Jesse Schell's DICE presentation and Jane McGonigal's TED Talk also helped to increase interest in the area.

In 2011 gamification gained much more notice in both industry and academia. The year began with the first annual Gamification Summit in January 2011. Gartner also released a statement predicting a growth of gamification for innovation processes.

> "By 2015, More than 50 percent of organizations that manage innovation processes will gamify those processes"
>
> — Gartner Press Release, 2011

Gartner also added gamification to their hype cycle. And hype was high indeed. Gamification started to be implemented in many different ways and new platforms started to appear that provided gamification solutions. One platform, Badgeville, raised $25 million investment funding in 2012. And the term gamification was beginning to be used left, right and centre… but what did the term actually mean?

Defining gamification

It's hard to place an exact date on when the term was first appeared but some sleuthing reveals that the term might have been coined around 2002/2003 by Nick Pelling when describing his work as a consultant for making hardware more fun (these links have since disappeared). However, the first documented use of the term wasn't until late 2000s, where sources indicate that "gameification" was used in 2008 in a blog post by Bret Terrill, who was covering discussions in the lobby at the Social Gaming Summit. He heard the term used in regards to "taking game mechanics and applying to other web properties to increase engagement". The term was picked up by other blogs and slimmed down by dropping the 'e', becoming "gamification".

A Google trend search for it shows that searching for the term gained popularity around 2011.

One of the earliest definitions of gamification can be found in the book Gamification by Design, where gamification was defined as "The use of game thinking and game mechanics to engage users and solve problems". The content of this book

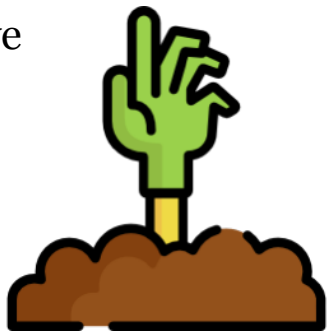
did come under some criticism. The term was gaining interest in the academic world and the Gamification Research Network was established after a workshop was run at the 2011 Computer-Human Interaction (CHI) conference entitled "Gamification: Using Game Design Elements in Non-Gaming Contexts". Towards the end of 2011 the term was defined in an academic publication. This definition become one of, if not the most popular, definitions for the word thus far.

> "The use of game design elements in non-game contexts."
>
> — Sebastian Deterding, Rilla Khaled, Lennart E. Nacke, Dan Dixon, 2011

What's clear is that game design is central to the word gamification. However, some game designers argued that in fact it had little to do with games, potentially due to early gamified applications using primarily reward and competition-based elements, such as points and badges. These reward systems were argued to be missing defining elements of what made a game a game, such as challenge and mastery.

Margaret Robertson described gamification as 'pointsification' and said it could go "take a long walk off a short pier" and Ian Bogost was also less than impressed with the term.

Nonetheless gamification has become pervasive and has continued to grow in popularity. And there have been some very successful and excellent game-like designs.



Take Zombies, Run! as an example. It is a smartphone application that instead of using badges, points and leaderboards to motivate users to exercise, it instead delivers a rich narrative to players, challenges them to outrun zombies, and has item collecting and town upgrading. All of this feels more like a game, which may have led to its modest popularity (1 million sales!).

Wrapping up

So what have we learnt in this chapter?

1. Play can be a powerful way to engage and motivate people. Gamification draws from video games to try and do this.
2. Many designers and researchers were already exploring the role of play and fun in computer applications before the term gamification was coined.
3. The most popular definition of gamification is “The use of game design elements in non-game contexts.”

Now, to further understand whether gamification is a useful approach and how best to implement it we need to further delve into the world of games and see what makes them just so incredibly engaging to begin with.

Chapter 2

Fun and games

What a video game is, the current state of play, and fun in games.

The current state of play

We don't really know what the first video game ever was, but one of the most interesting early games was Tennis for Two, a game which simulated, you guessed it, a tennis match!

Tennis For Two (1958)

Apart from being technologically impressive for it's time, Tennis for Two was built to cure the boredom of visitors to the Brookhaven National Laboratory. This is important – rather than just being built as a technological demonstration, the game itself was primarily built for the player's enjoyment.

Video games have come along way since Tennis for Two was made. Technology has greatly improved and we now have games with incredibly realistic graphics, fully orchestrated sound tracks, interesting characters and emotional narrative.

Gone also are the days where video games were just played by a minority. Video games are now mainstream, big business and incredibly engaging.

Don't believe me? Let's look at some data to help support this statement.

When it comes to video games you may think a stereotypical player is a young, nerdy male who plays video games all by himself in his room all day.

However, this is far from the truth, rather according the Entertainment Software Association (2015).

- Almost 50% of Americans play video games.
- The average age of players is 35 in America.
- 56% of players are male and 44% of players are female in America.

We also know that video games have become big business and are a strong engine for economic growth according to ESA Industry Facts report (2015).

- In 2014, the US industry sold over 135 million games and generated more than $22 billion in revenue

More importantly though, video games are engaging (ESA, 2015).

- 42% of Americans play video games for 3+ hours per week

What about one of the most engaging games out there – World of Warcraft? Can you guess how much time players have collectively sunk into this one game?

> “By one analyst’s calculation, the 11 million or so registered users of the online role-playing fantasy World of Warcraft collectively have spent as much time playing the game since its introduction in 2004 as humanity spent evolving as a species—about 50 billion hours of game time, which adds up to about 5.9 million years.”
>
> – Wall Street Journal, 2012

50 billion hours! And that’s just one game.

So if some video games can be so engaging, why can’t we make non-game activities just as engaging? Well, funny thing is this is the basic thinking behind gamification. However, to understand gamification further we need to be able to understand what exactly a game is and why some games can be incredibly engaging to play.

What exactly is a video game?

What is a video game? Good question, to answer that we need to ask first what is a game? Many definitions exist for the term game and trying to define it can be difficult (some people argue

that it's not even necessary to define it and in fact, this question limits the medium – a totally valid argument). However, the term game plays a significant role in gamification, therefore it's important for us to understand at least important elements and qualities of games to help properly influence how we might design gamification (otherwise we run the risk of creating subpar gamification because we don't understand games in the first place).

In his book, The Art of Game Design, Jesse Schell highlights a number of existing definitions for the term game and from these, creates out a list of ten qualities of games.

1. Games are entered wilfully.
2. Games have goals.
3. Games have conflict.
4. Games have rules.
5. Games can be won and lost.
6. Games are interactive.
7. Games have challenge.
8. Games can create their own internal value.
9. Games engage players.
10. Games are closed, formal systems.

In an attempt to address all of these qualities, Jesse Schell proposes a succinct definition for a game.

> “A game is a problem-solving activity, approached with a playful attitude.”
>
> — Jesse Schell, 2014

Viewing a game as a problem-solving activity is a great starting point, but it’s the playful attitude part which is incredibly important to consider. As soon as we are obliged to do something, does it cease to be play and become work? And vice versa? According to Mark Twain it does.

> “Work consists of whatever a body is obliged to do. Play consists of whatever a body is not obliged to do.”
>
> — Mark Twain, The Adventures of Tom Sawyer

Nice quote. We’ll revisit this idea in the next chapter when we talk about motivation and autonomy, but for now… back to defining video games!

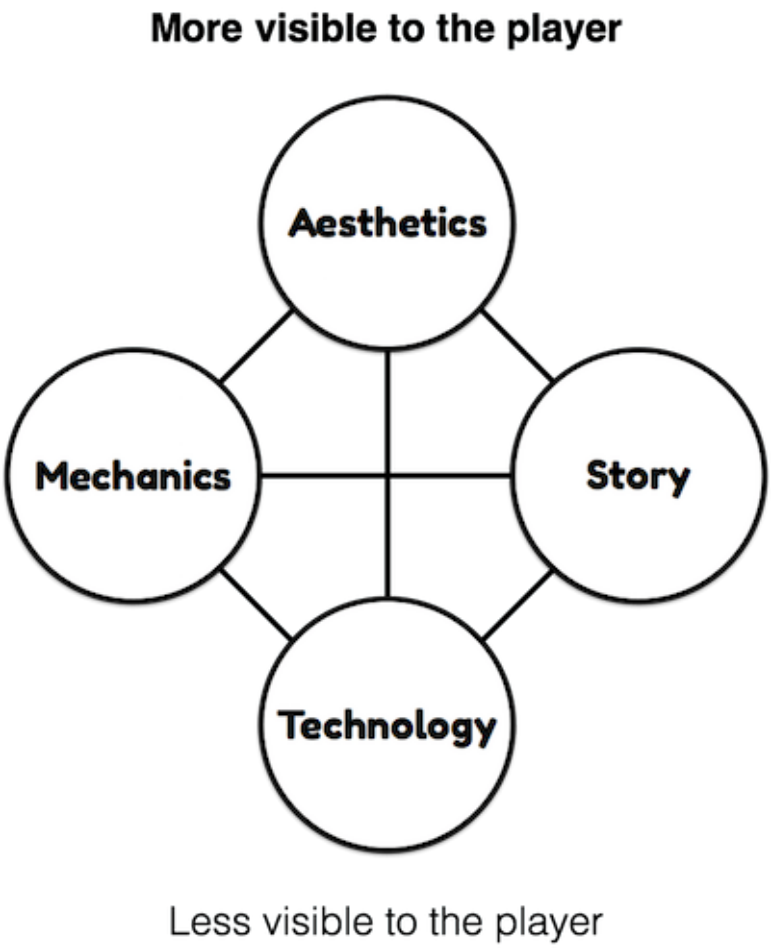
If we keep it simple, a video game is **a game that uses digital technology**. Using technology means we can use digital graphics, video and audio to create new and immersive worlds to play in. However, there is something else as well…

> “The most important benefit computers bring to gaming is that the computer relieves the players of the burden of personally implementing the rules. This frees the players to become as deeply immersed in a video game as they can in other forms of entertainment.”
>
> — Ernest Adams, 2009

This is important – especially when it comes to understanding why gamification has become so popular as well. These days, technology is able to determine much more about us and what we’re doing. For example, smartphones know our location, can tell how much we’re moving and how fast we’re moving, which opens up the ability to create digital games around our exercise for example. As technology continues to become ‘smarter’ and cheaper we’re seeing more and more possibilities for games to be embedded into our everyday activities. We’ll come back to this in chapter four when we talk about designing gamification.

The Elements of a Game

Beyond a definition of the term, it’s useful considering what the basic elements of games are. There are a number of different ways to do this, but Jesse Schell once again provides a very useful way to categorise the elements of games. He calls it the Elemental Tetrad, and it consists of four categories.



The Elemental Tetrad – From Schell, 2014.

Schell says that each of these elements are all essential no matter what the game is, and none of the elements is more important than the others. The categories of elements proposed include:

- Mechanics: The procedures and rules of a game.
- Story: The sequence of events that unfolds in the game.
- Aesthetics: How the game looks, sounds, smells, tastes, and feels.
- Technology: Any materials and interactions that make your game possible (e.g., paper, pencil, computers).

This elemental tetrad is a useful tool when it comes to game design (and gamification design) to help remind us to design for all four elements, consider how our designs could be improved by enhancing elements in one or more of the categories, and make sure all four elements work in harmony and reinforce each other (Schell, 2008).

Now we have an understanding of what a game is and what it's made up of, it's time to talk about what makes games so engaging in the first place.

Why are games engaging?

We've seen that games are incredibly popular, but why do people play games in the first place? What makes them so engaging? The most recent Digital Australia survey (2016) found that "common reasons people play are to pass time and have fun".

Fun is a tricky word to unpack, but Raph Koster does a nice job explaining where fun comes from in games.

> "Fun from games arises out of mastery. It arises out of comprehension. It is the act of solving puzzles that makes games fun. In other words, with games, learning is the drug."
>
> — Raph Koster, 2005

But not all learning is fun right? You might have found some classes at school less than enjoyable, so what's the difference between this type of learning and that in an engaging game?

Well, there's two things worth considering, the first is that in games, the problem-solving is approached with a playful attitude (remember the definition for games from before?), and secondly, the learning needs to be designed well.

So how do we design interesting challenges? Well, Sebastian Deterding (2011) summarises this nicely using the proposed 'equation': **Goals + rules = Interesting challenges**. Then if we take **interesting challenges**, add **feedback** to those interesting challenges, we get **experiences of mastery**. Let's break these down a further.

- **Goals + Rules = Interesting Challenges**

Games start by **setting goals** for us to achieve. Take golf as an example – the goal is to put the ball in the hole. This on it's own is not that interesting – you could just pick up the ball, walk to the hole and put it in. To make it interesting **rules** are added – you have to use a club to hit the golf ball, you have to start a certain distance away, obstacles like hills, lakes and sand pits are added between you and the hole.

These goals and rules now create a range of **interesting challenges** for the player. Much more interesting than just picking the ball up and putting it in the hole.

- **Interesting Challenges + Feedback = Meaningful Experiences**

Taking these interesting challenges and then having **clear feedback** (in golf this is provided by the score board, the satisfying thwack when the ball is properly hit, etc.) can then lead to **experiences of mastery**. Having clear feedback closes the loop – giving players a sense of how they are doing, how they can improve and if they've mastered the challenge. This experience can be very satisfying and if we can design to support these in not only games, but gamification as well, then we're on the right track.

However, Deterding argues that many current gamified systems are designed in a way where they give you lots of feedback but without any real challenge, for example signing up for a website or reading three blog posts. These are bland and pale in comparison to a more meaningful challenge.

So it's important to support interesting challenges and experiences of mastery when creating games and gamification because this is what makes games so engaging.

Wrapping up

So what have we learnt in this chapter?

1. Video games are popular, many people play them, they're big business and they can be incredibly engaging.
2. A game is a problem-solving activity, approached with a playful attitude and video games are games that use digital technology. There are four elements to games; aesthetics, mechanics, story, and technology.
3. The act of solving interesting challenges is what makes games fun. Interesting challenges arise out of creating goals and rules. Add clear feedback to interesting challenges and we get meaningful experiences, which are key to good gamification design.

In the next chapter, we're going to take a brief trip into the field of motivational psychology and look further at some of the underlying theories of motivation to help us understand gamification even further.

Chapter 3

Theories of motivation

What is motivation and why are games motivating?

What is motivation?

Understanding what motivates us and why is no easy task. Over the years many different theories have been proposed and a lot of research has been undertaken. However, we can narrow our focus to look at theories and research that specifically focus on studying games and why we're so motivated to play them.

Motivation is a theoretical construct used to explain behaviour. In particular the initiation, direction, intensity, and persistence of behaviour, especially goal-directed behaviour. (Brophy, 1998). *Motivational psychology* is interested in studying and trying to explain the reasons behind the way we behave.

You'll probably agree that some of our behaviours seem pretty easy to explain. For example, why do we eat food? It's because we need it to survive. But then other behaviours are harder to explain, for example, why are just over 52.3% of Americans unhappy at work, something they're paid to do? And why are some of us happy to collectively contribute over 70,000 hours a day of our own time editing Wikipedia articles? Or why would millions of us spend ~50 billion hours of time in the game World of Warcraft, something we have to pay a monthly fee for?

These are good questions, and further on we'll look at some theories of motivation that can help explain further why video games might be so engaging. Why should we look at motivation? Because understanding what makes games so motivating to play can lead to a better understanding of how we might design more effective gamification.

To put it plainly, if we are going to add points and badges to our site to engage people we need to understand why this might motivate people and importantly, if it will actually work.

Carrots and sticks

There has been a little bit of a common theme with gamification design over the last couple of years. Known as the *gamification blueprint* it usually involves the use of one or more of the following elements:

- Points
- Badges
- Leaderboards

We can probably thank Foursquare for this.

Foursquare used to be a location sharing service (it's changed a bit now). Initially released in 2009, by 2011 it had **10 million users** (Tsotsis, 2011). At this time the app allowed you to "check-in" to various locations, such as coffee shops or parks, and then you could share this check-in with your friends so they knew what you were up.

But what Foursquare really became well known for were the game elements that it included in the app as a way to encourage its use. When you checked-in to any location, you received points. If you checked-in to a new location you hadn't visited before then you received even more points! You could compare the number of points you had on a leaderboard with friends. Check-in enough times and you became the virtual mayor of a

location. You also received badges for doing special things, like checking-in on a boat. For a lot of people this felt like a game!

Since then we've seen an increase in the number of websites, apps and software that have decided to include these elements (points, badges and leaderboards) as a way to gamify the system and (hopefully) engage users.

The thing is, these elements are fairly easy to add to existing systems - you simply need a way of identifying a particular behaviour that you want to encourage and then you can reward users when they complete it with points or a badge. There are even entire platforms and plugins out there to help you integrate these elements into your website. However, if we're focusing too much on rewards to gamify our systems then we may run into some trouble.

It's easy to fall into the trap of thinking that simply by rewarding a particular behaviour with points or a badge then it will make it more fun and motivating - but this is often far from the truth.

If it was then Progress Wars would be the most enjoyable game in the world. What is Progress Wars you ask? Well if you're on a device then click here to play it.

Otherwise here's a description. In Progress Wars you are tasked with a random mission that you complete by clicking the **Perform mission** button. As you press the button the progress bar fills up and once it is full you gain a level and get your next mission.

To complete your next mission (and every mission afterwards) you simply have to click the **Perform mission** button again and again.

Progress Wars Mockup

After a while this becomes pretty boring. Although the rewards are in place (gaining levels and getting a new mission in this case) there's something missing. Can you remember what makes a good game motivating to play?

> “Fun from games arises out of mastery. It arises out of comprehension. It is the act of solving puzzles that makes games fun. In other words, with games, learning is the drug.”
>
> — Raph Koster, 2005

When we focus on just using rewards to encourage users we're relying on using **extrinsic motivation**. We are extrinsically motivated when we perform an activity in order to attain a

desired outcome, or to avoid a negative one - think carrot and stick.

This kind of motivation can work incredibly well to motivate us in some contexts. In fact, for as long as any of us can remember, we've configured most of our work lives around the assumption that the way to improve performance is to reward good performance and punish poor behaviour (Pink, 2011).

However, there are disadvantages when we rely on extrinsic means to try and motivate people. Dan Pink (2011) discusses how research suggests that using rewards and punishment can have the following effects:

1. They can extinguish intrinsic motivation.
2. They can diminish performance.
3. They can crush creativity.
4. They can crowd out good behaviour.
5. They can encourage cheating, shortcuts, and unethical behaviour.
6. They can become addictive.
7. They can foster short-term thinking.

Research also suggests that the value of rewards diminish over time (Kohn, 1994). So a bigger and bigger reward is needed to keep us motivated. Research also suggests that once the reward is removed, we're unlikely to continue (Kohn, 1994).

Extrinsic motivation doesn't really explain why we play video games either. Yes rewards are a big part of games, but they're generally not the primary reason we play games. Instead, there is another type of motivation at play... and that is **intrinsic motivation**.

Intrinsic motivation

Someone who is intrinsically motivated will undertake an activity primarily for the **inherent satisfaction of the activity itself**. The drive is internal, rather than external, such as reading because you are enjoying the book and not because you're being rewarded with, let's say, pizzas for the number of books you've read (even though pizzas are pretty delicious).

CC By 2.0 Tim Pierce

What's so interesting about intrinsic motivation? Well, the advantage of being intrinsically motivated is that this type of motivation can be long-lasting, self-sustaining and fulfilling, which is awesome.

Previous research has demonstrated that, compared to those who are externally controlled, people whose motivation is authentic will typically have an enhanced performance, persistence and creativity, heightened vitality, self-esteem and general well-being (Ryan & Deci, 2000).

And for most of us the reason why we play games are because they are so intrinsically motivating. The act of playing a game is also considered an enjoyable and intrinsically satisfying activity on its own.

So if this is the reason games are so motivating, then rather than just focusing on rewards when it comes to gamification, we should probably further investigate what makes games intrinsically motivating to play. Luckily there are a number of well-established theories that can help us out here. Let's start by looking at one popular theory of motivation, **Self-Determination Theory**.

Self-Determination Theory

Self-Determination Theory (SDT) proposes that satisfying three innate needs, **autonomy**, **competence**, and **relatedness**, allows for optimal function and growth (Deci & Ryan, 1985). Supporting these three needs is argued to encourage an **incredibly high quality form of motivation**.

- **Autonomy** refers to the choices people make and why they make them. We perceive autonomy to be high when we choose to take on an activity because we're interested in it, rather than doing it for external rewards or fear of punishment.
- **Competence** refers to the ability to be challenged appropriately. This generally happens when we are given a challenge that matches our skill level - something that is not too easy that it becomes boring, and not too difficult that we become anxious.
- **Relatedness** refers to a our connection to, and support from others. It has to do with our development and maintenance of close personal relationships.

It has been hypothesised by the same researchers that games are primarily enjoyable and motivating to the extent that players experience autonomy, competence, and relatedness while playing (Ryan & Deci, 2000).

Take a moment and think about a game that supports these three needs? One I can think of is World of Warcraft, which might account for why it's so popular. It particularly supports relatedness very well, allowing the development of close personal relationships which have led to friendships in the real world and even some marriages.

So if this is such a valid explanation for why games are so enjoyable and motivating then it may be a useful considering how we can support the three needs of autonomy, competence and relatedness, when we're designing gamified systems.

While we're on the topic of SDT, and in particular competence, it's well worthwhile mentioning another related theory - flow theory.

Flow Theory

We can't talk about intrinsic motivation without also discussing the theory of flow. Flow describes a state of full immersion - when someone is concentrating so intently on an activity they are said to be in a state of flow (Csikszentmihalyi, 2000). And flow has been witnessed in people who rock climb, dance, play chess... and also those who play video games.

When you're in a state of flow, researchers Nakamura, & Csikszentmihalyi (2009) propose that you experience the following:

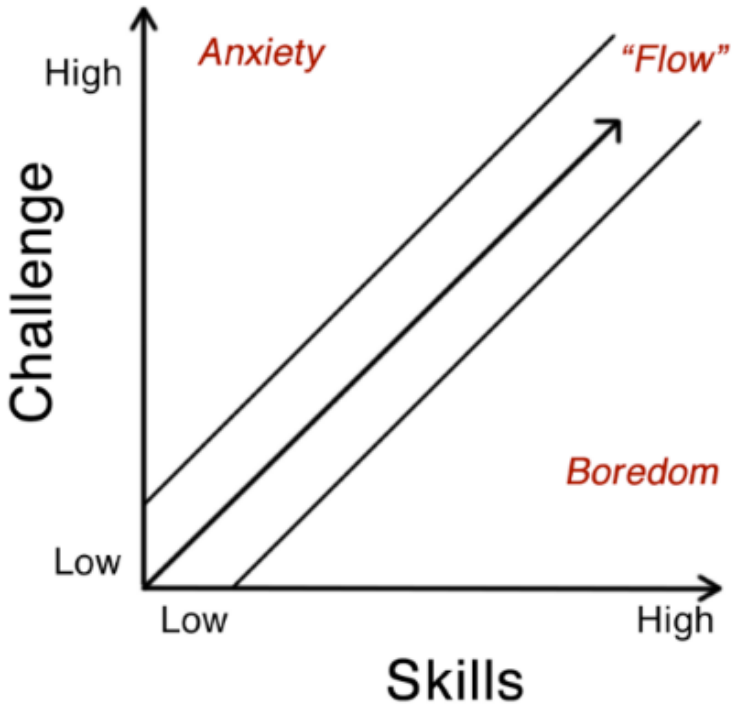
- An intense and focused concentration on the present moment
- A merging of action and awareness
- A loss of reflective self-consciousness
- A sense of control over the actions you're taking
- A distortion of time, where time passes faster than normal
- You experience the activity as intrinsically rewarding, where often the end goal is just an excuse for the process

Does this sound familiar to you at all? I know this sometimes happens to me, I'll sit down to play a game for five minutes and then two hours later I'm still playing.

How do we reach a state of flow though? Well, it's suggested that three conditions need to be met to achieve a flow state:

- The activity must have clear goals and clear progress towards goals as this adds direction and structure
- The task at hand must have clear and immediate feedback. This helps us to make choices and adjust our performance in order to maintain the flow state.
- The task can't be too difficult or too easy for us. We need a good balance between the perceived challenges of the task and our own perceived skills.

The state of flow is fragile though, if challenges exceed our skills then we can become anxious and if our skills exceed challenges then we may become bored.



From Csikszentmihalyi (2000)

Flow theory has been explored in video game research. Sweetser & Wyeth (2005) proposed GameFlow which is a model for evaluating player enjoyment in games. Jenova Chen explored flow in games for a masters thesis (2007) and developed the game flOw to encapsulate his research and learning (click to play).

So this theory of flow is very relevant to video games and considering it when designing a game is useful. Therefore, this theory may also be useful to consider when trying to design an engaging gamification design.

Wrapping up

So now we have a better understanding of motivation, what the differences are between extrinsic and intrinsic motivation, and some theories of motivation that relate to games.

There are other theories of motivation out there that we haven't discussed, however those we have looked at in this chapter are core to understanding why games are so motivating, and if gamification is all about framing activities like games then these theories are likely going to be the most useful to us.

So now we are at a point where we better understand what gamification is, what a game is, and why games are so engaging. It's time to wrap up this chapter series by talking about effectively using gamification.

Chapter 4

Effective Gamification Design

Designing an engaging gamification experience.

Designing gamification

So you want to try your hand at gamification design? Excellent! Prepare yourself, because you're about to get a crash course in gamification design. Are you ready? Here we go...

Step 1. Add points & badges!

Step 2. Profit!!!

That's it! Easy right? We're done. You can all go out now and gamify everything. Any questions? No? Excellent! Well, I hope you enjoyed this introduction to gamification!

GAME OVER

Thanks for playing!

Wait... you're still here? Okay, you got me. If you've read the last few chapters then you know that there's **more to games than points and badges**. These design elements may work well as rewards and feedback in games but they're not the primary reason most games are fun.

“

> “Games are good, points are good, but games ≠ points.”
>
> — Margaret Robertson

So what's missing? If you remember back to chapter two we discussed Raph Koster and how he details that the fun from games arises out of mastery and solving puzzles. Just adding points doesn't necessarily create an interesting challenge for us to solve. In chapter three we identified that the researchers Ryan, Deci and others hypothesised that games are primarily motivating to the extent that players experience autonomy, competence and relatedness while playing. So how can we put this knowledge to use and design a game? Well, it's not easy...

“

> “The idea that one can make an activity engaging by integrating game mechanics ignores the fact that building an engaging game is hard.”
>
> — Brock Dubbels, 2013

But nonetheless, let's give it a go. When it comes to designing gamification there are a few key things to consider and a few useful processes we can use to help increase our odds of making an effective gamification design. Get ready. It's going to be a longer chapter than usual because there's a few things to talk about. First up, we'll talk about validating the use of gamification, then we'll look at designing a game-like experience that suits your players. Finally, we'll talk about the importance of playtesting and iteration in order to fine tune your design.

Let's start with understanding what you want to gamify, and the most important question you'll need to ask first might surprise you a little...

Do you actually need gamification?

I know, it seems like an odd question, but it can be easy to get caught up in the hype of gamification and jump to the conclusion that we should use it. However, it is incredibly important to first identify the problems we're trying to solve in order to understand whether gamification is actually going to be a useful solution or not. So the first step is...

Step 1. Clearly identify the problem and the goals

Ask yourself, what is the problem you're trying to solve? For example, your problem might be that visitors to your website aren't signing-up to your newsletter, or your employees don't submit their weekly time sheets on time, or your kids aren't

doing their chores. Once you've identified the problem, it's time to validate the problem.

Step 2. Determine if the problem is valid

This may seem like another odd step. You've identified a problem, why should you need to determine it exists? Unless you've already undertaken some research, it's likely you have a hunch that the problem you've identified exists, but unless you validate this hunch properly then you might find yourself in peril. Why? Jesse Schell (2014) sums it up nicely:

- Peril #1: Introspection can lead to false conclusions about reality
- Peril #2: What is true of one person’s experiences may not be true for others

What this means is that until you validate your problem, you won't know whether it's correct or if other people are experiencing it. So you need hard data to support your claim. A good way is to undertake some exploratory research to determine the reasons for the problem and understand the users. You can start by **observing** or **talking** to those involved with the problem. Both work well. For example, if people are visiting your website but not signing up, then you might want to find a typical user in real life and sit them down and get them to use your website while you watch and take notes. You could get them to **think aloud** as they perform the task.

It helps if this person isn't a friend or family member, as you're likely to get better feedback that way. Another way you could try and validate this problem is to add analytics to your website and see where users are getting to in the sign-up process.

You could also try and talk to your users. Send out an e-mail campaign to those who have signed up with **a survey** that asks them why they signed up or if they had any issues in the sign-up process.

The results you find might surprise you. For example, you might find that in fact the sign-up process isn't clear, or the signup form doesn't show up on a smartphone. If this is the case then this isn't really a problem you'd tackle with gamification... it's a usability problem.

Say though that your employees aren't handing their time sheets in on time because they aren't motivated to do it because they don't enjoy filling them out. This might be a more appropriate problem to solve with gamification as this problem is related to motivation.

If the problem is related to motivation, there are a few more questions to ask before jumping into gamification design.

Step 3. Highlight any negative consequences

You need to make sure there aren't any negative consequences with framing the problem as a game. For example, is the problem that you want to tackle inherently serious or dangerous in nature.

Or does your problem require a serious attitude? For example, if your system is trying to help someone with credit card fraud then a playful solution may not be the most appropriate tool in this context. If it all looks good, then there's just one more thing to look at...

Step 4. Find out if it has been done before

It's important to do some research and see if someone else has already tackled this problem before with gamification (or tried to tackle it) in either industry or research. Search the internet or app store and see what exists. Or jump on Google Scholar and have a look at the research in the area. If it does exist then ask:

- Did it work?
- Could it be done better?
- What can you learn?
- Is there a system built that you can use?

Step 5. Decision time

Whew, that's a lot of work before we even start thinking about game elements! But it's important to nail these questions to make sure we're not going to waste our time. If you've reached this point, it's time to make a decision. Should we proceed with a gamification solution? Well, if you have identified a valid motivational problem that doesn't have any negative consequences and isn't reinventing the wheel then you're ready to continue!

Start brainstorming ideas

Okay! We're now at the point where we can start diving into the gamification design, but before we start applying points and badges everywhere it's important to look at who exactly will be using our gamified system. Why? It’s important we design a gamified solution that suits the target audience. For example, we need to know if our players enjoy competition, or if they like collecting badges. Therefore, the first thing to do is...

Step 1. Understand your players

When designing games, it's integral to consider who your players are and what kinds of games they like to play – and for gamification it's no different. When we think about different types of games, we often categorise them into different genres (e.g., puzzle, sports, action, fighting, adventure).

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This is a start, and we could look at creating gamification solutions that tap into one or more of these different genres. However, there are other ways to classify games that look beyond genres, and instead look at motivations of play and what we enjoy from video games. One way, is to look at the **aesthetics of play** from the paper *MDA: A formal approach to game design and game research* (Hunicke, LeBlanc, & Zubek, 2004). This paper proposes an initial taxonomy of terms to help describe what we find fun in games, such as **Fantasy** (Game as make-believe) and **Challenge** (Game as an obstacle course). There's a great video from *Extra Credits* explains this taxonomy better than I could and it is worth watching (search for Aesthetics of Play by Extra Credits on YouTube or click here if you're on a computer).

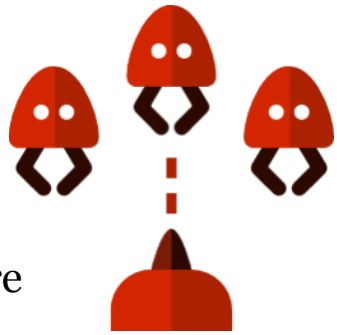
A number of other classifications exist that also may be of some use, such as the Motivations for Video Game Use, MMORPG Player Motivations, Bartle's Taxonomy of Player Types for Multi-User Dungeons.

It's also worthwhile noting other demographic variables. For example, **age** can be a significant variable when it comes to game design (Schell, 2014). We tend to play differently as we get older, our abilities can change and our interests are often greatly influenced by what we played when we were younger. You'll find that young children for example might not have a grasp on complex games, teenagers might have a greater reaction speed and plenty of time to sink into games, and older people might be pressed for time and want more casual experiences. These variables can greatly impact our design.

Using this information we can create a demographic and player survey (or reuse an existing one) that we can distribute to our target audience in order to understand them better. After collecting this information we can use it to create general player profiles to help guide our gamification design.

Step 2. Identify the core gameplay

Earlier we identified the problem and goals we're addressing with gamification, now it's time to consider what the specific desired behaviours are that we want to encourage our players to perform. This behaviour will likely become the core gameplay of our gamification design. Core gameplay in video games is the one action the player tends to repeat most often as they try to achieve the game's overall goal. This core action tends to remain the same throughout the game and should be simple to explain (i.e., able to be written in a single sentence). Take Space Invaders (1978) as an example, what do you think the core gameplay would be?



The core gameplay would be **move and shoot**. What about for a first-person shooter game like Call of Duty? It's going to be the same - **move and shoot**. What about for the game of soccer (or football depending on where you're from)? **Run and kick**.

With gamification, what is the specific desired behaviour we're trying to encourage? For example, if we want to encourage players to undertake more exercise then **walk and run** might be our core gameplay. If they are late handing in their time

sheets each week then our core gameplay might be **fill out and submit.**

Once we've identified the core gameplay, it's useful to then consider what's currently missing from the game...

Step 3. Consider what's missing

This is where our knowledge of what a game is and the underlying theories of game motivation come into play. If we consider the activity we want to gamify as a poorly designed game then we can look at why it currently doesn't provide a meaningful experience for the player and use this as a starting point.

Remember back to what makes a meaningful experience in chapter 2? It's the combination of **Interesting Challenges + Feedback.** And what makes a challenge interesting? A combination of **Goals + Rules**. In chapter 3 we talked about what makes games motivating. We discussed that an engaging game generally has a **clear goal, clear progress, clear feedback** and a **balance of challenge and skill**. In addition to this, engaging games often support **autonomy**, **mastery** and **relatedness**.

With this in mind, it's useful looking at the current activity and working out what is currently missing from it. Does it have clear achievable goals? Are the rules obvious? Is there clear feedback? Is there a sense of autonomy? Looking at what's missing is a great way to identify where to begin with our design.

Step 4. Brainstorm ideas

At last! We can now start designing a solution! It took a while to get here right? But never fear, all of the preparation we did will give us an advantage. There's no set formula for designing an engaging game, but there are some useful tools and processes to help us out.

We can now look at how game elements could be used to try and make our desired user behaviour more intrinsically motivating, rather than just defaulting to reward-based game elements that promote extrinsic motivation. Of course, using extrinsic motivation is an option, and a valid one, particularly in cases where the task is incredibly boring and people are completely unmotivated to perform it. But it's worthwhile seeing if we can find the fun to begin with. To do this, let's take that core gameplay mechanic and turn it into a larger game experience.

It's good to start with a broad, general goal and then define a specific, measurable goal as an example of success. For our example problem, our general goal is **undertake regular exercise**. This is a great start, but we need to break this goal down into a specific behaviour that we can measure, so we know when our goal is achieved. It's also got to be tailored to our target audience. For our example, let's say that with a bit of research we decide our target players should **run for at least 30 minutes a day**. This is an appropriate behaviour that satisfies our problem and this clear measure of success can become the goal of our first gamification design idea.

Now that we have the goal of our game. It's time to brainstorm some ideas! Where do we begin? With our players of course - what do they like from their games?

Maybe some players just want more **feedback**. We could simply provide something that gives them the distance and speed that they run at and from this they can set their own goals and challenges (e.g., RunKeeper).

If they're the **competitive** type, then we could look at tracking how quickly they perform and allow them to compare themselves to past performance and to other runners (e.g., Strava).

If they're more into **narrative** then we could look at adding this to the core gameplay. Maybe a story that unfolds where they are a survivor in a zombie apocalypse where they have to run around and collect supplies (e.g., Zombies, Run!).

There's no set of hard and fast rules when it comes to brainstorming gamification ideas. The ideas can be small, just looking at adding motivational nudges to support missing game elements. Or the ideas can be huge, where we propose a fully-fledged, game-like experience. It will depend on what's currently missing from the experience, what your players find fun.

Step 5. Choose one

Once you've brainstormed some ideas, it's time to pick one to design further. You can do this by running your ideas by target players, stakeholders, and other gamification designers. Sketching up your ideas or creating basic prototypes can help get your idea across of get feedback on whether the core gameplay is any fun. There will be a number of criteria that should influence your decision, such as will players find this design fun and do we have the team, time and budget to create this idea? Once you've picked one, it's time to start creating your design.

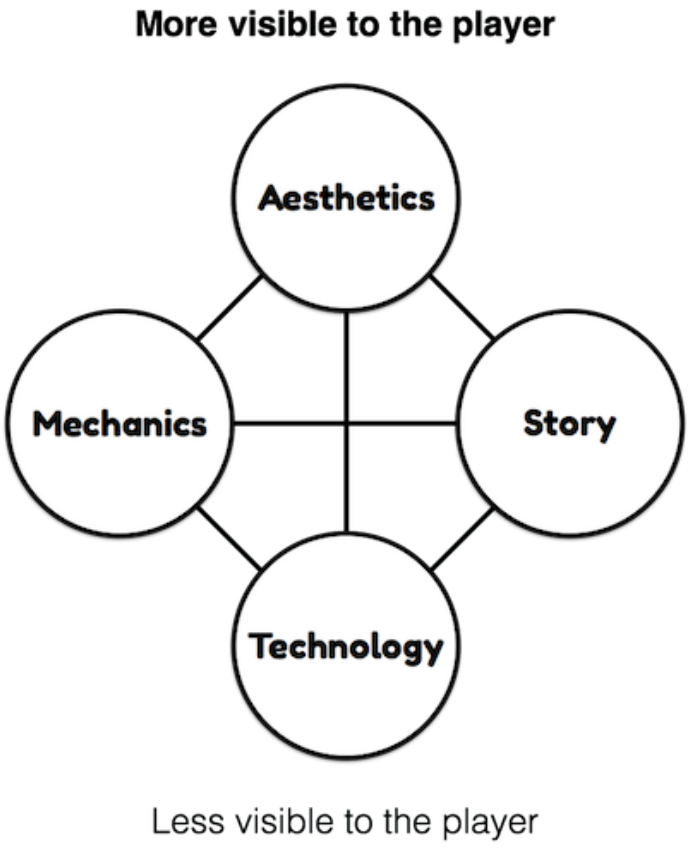
Design, develop, playtest, repeat

It's unlikely you'll nail the gamification design first go. Designing an engaging game is difficult but adopting an iterative design process can be useful to help refine your gamification idea. An iterative design process involves undertaking repeated cycles of design, development and testing. You start the process by making high-level, quick prototypes to test key features of the gamification design with players. The benefit of using this kind of approach is that you get feedback quickly and early on which makes it easier and cheaper to adjust and refine the design. In the final part of this chapter we'll look at each of the key stages of this process in more detail.

Step 1. Design

You've brainstormed a few ideas and chosen one that you want to pursue, it's time to expand upon the design so it's ready to prototype. You've got the core gameplay and some initial ideas, so what's next?

A great next step is to create a gamification design document. Like a game design document, this document will outline the gamification design in detail so it can be prototyped. What can this document include? A range of things, but a good starting point is to use the four elements from **Jesse Schell's Elemental Tetrad** that we discussed in chapter 2.



The Elemental Tetrad – Adapted from Schell, 2014.

Each of these elements are all essential to a game, and can be important in gamification as well. You can start the document by expanding upon these four elements of your design.

The mechanics are the procedures and rules of the gamification. You've got your core gameplay, but what is the main goal of your gamification design? Are you going to tie it to the goal of your problem (e.g., exercise every day)? Or will you have an external goal that players need to complete (e.g., save the prince)? What are the rules of your game? How will they create interesting challenges for your players? What kind of feedback are you going to provide?

A few tips for this part:

- The activity should have clear goals and clear progress towards goals as this adds and structure
- The task at hand must have clear and immediate feedback. This helps us to make choices and adjust our performance in order to maintain the flow state.
- The task can't be too difficult or too easy for our players. We need a good balance between the perceived challenges of the task and our own perceived skills.

When it comes to aesthetics, Schell talks about how the game looks, sounds, smells, tastes, and feels. What kind of aesthetics will you have in your design?

The story is the sequence of events that unfolds in the game. Like with some games you may have little in the way of narrative (e.g., Duolingo) or you might have a rich narrative

(e.g., Zombies, Run!). It depends on what kind of player you have.

Finally, technology refers to the materials and interactions that make your game possible. You might assume that you're creating something digital, but have you considered what other formats you could use? Could you use paper and pencils instead? This kind of option is cheaper and easier. Don't forget though, the technology you choose will have an effect on how you enforce the rules of your gamification design.

You'll need someway to measure the player's actions and enforce the rules and there are a few ways we can do this.

1. **Computer-enforced** - where we use technology to automatically sense when the behaviour has been complete (e.g., using a step counter)
2. **Crowd-sourced or refereed** - where someone else checks off the behaviour once it's complete (e.g., a teacher checking a student's homework)
3. **Self-enforced** - where the player checks off the behaviour once it's complete (e.g., checking off a to-do list task)

Which of these should you choose? Well, each has it's own advantages and disadvantages, for example, players could cheat if they use self-enforcement, but using technology might be inaccurate or be unable to sense what we want. As a rule of thumb, it's good to pick **the most automatic and accurate way to measure the behaviour.** If we can use technology to help us out then that's great, because this relieves the player of

having to implement the rules themselves, which can be useful...

> The most important benefit computers bring to gaming is that the computer relieves the players of the burden of personally implementing the rules. This frees the players to become as deeply immersed in a video game as they can in other forms of entertainment.
>
> — Ernest Adams, 2014

Your team, timeframe and budget will also affect what kind of technology you use. If you're planning on developing an app for example, you'll need programming skills or you'll need the budget to hire someone to build it for you. Development costs can quickly grow, especially if you need art, narrative and music in your design.

Step 2. Develop

Once you've put together a gamification design document, the next step is to develop a prototype that you can playtest with real people. If you're creating something digital it's always tempting to jump in and begin building it right away, but you may find it easier and quicker to prototype something with pen and paper first. It’s useful to do for any gamification designs you work on, the idea is you want to quickly get feedback on whether your idea is any good, and if people enjoy using it.

If it's not, then if you've used pen and paper it's easy to scrap it and create something new. You can use other existing tools to help you out as well, for example I worked on a gamification design that aimed to encourage regular exercise and a prototype was built using a combination of a google form and Facebook messenger. This prototype was built in a day and a week later feedback was provided from players.

If you're developing a webpage or app then you can use mock up some screens in Photoshop or a similar program and then put them into something like InVision or even Powerpoint or Keynote and add links to create a prototype. Use whatever you're familiar with in order to get a prototype up and running as soon as possible.

As you continue iterating through this particular design process, your prototypes will become more and more functional, and you'll want to start building them in the actual technology that you plan on using. When should you start this? It's up to you, if you're familiar with the technology you may start early on, if not, you may want to make sure your idea is enjoyable before beginning development.

Step 3. Playtest

Playtesting is a necessary condition for survival when it comes to games. The same can be said for gamification. Playtesting is something you perform as a designer throughout the entire design process to gain an insight into whether or not you're achieving your player engagement goals (Fullerton, 2014).

We should be playtesting as early as we can in order to test if our design is working. Playtesting in beta is too late as making major changes at this stage is incredibly difficult.

When it comes to playtesting a prototype there's a number of important things to consider. First up, it's best if we can recruit our target players as testers. If we get our friends or family to test it they're likely to give us useful feedback, but this feedback may not represent what our target players feel. We can also undertake self-testing, where we (or our development team) personally test the prototype. This kind of testing is useful when experimenting with some of the fundamental concepts of the design. But as we refine the design, we should rely more and more on outside testers to provide feedback.

When testing our design we should do it in a setting that mimics the context in which our players will be using it. It may be useful to be present to observe, take notes, and ask our players questions, but sometime this isn't possible. If we are remotely testing then we can use surveys or undertake Skype interviews in order to get useful feedback. There are a number of different approaches to this and it's a matter of finding which one works for you that will provide you with the most valuable feedback.

Once you have feedback it's then time to use that to refine the design. The feedback should give you an idea of whether your idea has value, whether people enjoy it and whether it actually hits the goal of the gamification (e.g., encourage more exercise). Using this feedback you can then change elements of your design (e.g., rules, mechanics, feedback, narrative) in order to

make it a better experience. This is when you jump back into the design phase, update the prototype and then test again. How many iterations should you undertake? This really depends on a number of factors, for example any deadlines you have and your budget.

Wrapping up

Whew! That was an epic chapter. We covered a lot and there's plenty more to talk about but for now, that should give you a nice primer for what's involved in gamification design. What did we learn in this chapter?

1. Don't just jump to the conclusion you need gamification, make sure to validate the problem you're trying to solve and then look if gamification is a useful approach.
2. Before designing the gamification, work out who your players are and what they like when it comes to video games - they may just not be into badges and points.
3. Iterative development is key when it comes to designing an effective gamification experience. Create prototypes as early as possible and test them with your target players to see if what you've designed is working, or if it needs refinement.

The next adventure

That wraps up this introduction to gamification - what an adventure we've been on!

You should now have a better understanding of what exactly gamification is, what games are, why games are so motivating and how to use all of this knowledge to start designing effective gamification.

What now?

Well, there's still plenty more to learn and you can find some other useful resources on the Gamification Geek website. Start with the resources page and then work your way through the teardowns.

I've also created a gamification community you can join to chat with other gamification designers, practitioners, and researchers.

Of course, if you have any questions or want some help with gamification design then don't hesitate to get in touch with me.

Game on!

Dr Zac Fitz-Walter

E: hello@zacfitzwalter.com
W: www.zacfitzwalter.com

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GAME OVER

Thanks for playing!

(For real this time)